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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

TORRES, JOSEPH D

ART UNIT	PAPER NUMBER
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2133

DATE MAILED: 06/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/756,778

Applicant(s)

GUEGUEN, ARNAUD

Examiner

Joseph D. Torres

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 January 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☒ Claim(s) 1-23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4, 7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Priority*

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in France on January 21, 2000. It is noted, however, that applicant has not filed a certified copy of the French application as required by 35 U.S.C. 119(b).

### *Drawings*

2. The drawings are objected to because the boxes in the figures are not labeled. The Examiner recommends labeling the boxes in the figures for greater clarity and ease of reading, for example; box 70 in Figure 7 should be labeled as Detection Step. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Specification*

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. **It is important that the abstract not exceed 150 words in length** since the space provided for the abstract on the computer tape used by the printer is limited. The **form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided**. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

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The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The abstract of the disclosure is objected to because it uses form and legal phraseology and is more than 150 words in length.

In addition, since it has not been determined as of yet which Figure will be printed when the Application is allowed, all references to the figure must be deleted.

Correction is required. See MPEP § 608.01(b).

4. The disclosure is objected to because of the following informalities: The word "Title" must be removed from the title on page 1 of the specification.

Appropriate correction is required.

### ***Claim Objections***

5. Claims 5 and 8-23 are objected to under 37 CFR 1.75(c) as being in improper form because multiple dependent claims 5, 8, 11-23 depend from multiple dependant claim 4. See MPEP § 608.01(n). Accordingly, the claims 5 and 8-23 not been further treated on the merits.

6. Claim 4 is objected to because of the following informalities: claim 4 cites "the error-correcting coding type" which lacks proper antecedent basis and "according to any one of the preceding claims" which is not acceptable language for a multiple dependant claim (Note: the preamble of claim 4 cites, "Digital transmission method of the

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error-correcting **coding type according to** any one of the preceding claims"). The Examiner assumes the following was intended: Digital transmission method **for** error-correcting **code as in** any one of the preceding claims. [Emphasis Added]  
Appropriate correction is required.

7. Claims 1-23 are objected to because of the following informalities:

MPEP § 608.01(m) states that the use of reference characters is to be considered as having no effect on the scope of the claims; hence the Examiner recommends that the reference characters to the drawings be removed.

Appropriate correction is required.

8. Claims 1-23 are objected to because of the following informalities: the claims use the phrase "the said" throughout; the Examiner suggests that the applicant use either "the" or "said" in place of "the said". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 1-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claim 1 recites the limitation "the error-correcting coding type" in line 1. There is insufficient antecedent basis for this limitation in the claim. More specifically the Preamble of claim cites, "Digital transmission method of the error-correcting coding". The Examiner assumes the following was intended: Digital transmission method for error-correcting code. [Emphasis Added]

Claim 1 recites the limitation "the said method" in line 16. There is insufficient antecedent basis for this limitation in the claim. Since there is only one method in the claim language prior to the recitation, the Examiner assumes the following was intended: the transmission method.

Claim 2-23 depend from claim 1, hence inherit the deficiencies of claim 1.

10. Claims 1-23 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. Claim 1 cites, "the said plurality of elementary coding steps with association with a plurality of adapted interleaving and deinterleaving steps" in lines 12-14. The omitted elements are: the association or actual relationships between "the said plurality of elementary coding steps" and the "plurality of adapted interleaving and deinterleaving steps".

Claim 2-23 depend from claim 1, hence inherit the deficiencies of claim 1.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1-4 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Divsalar, Dariush et al. (US 6023783 A, hereafter referred to as Divsalar).

35 U.S.C. 102(e) rejection of claim 1.

Divsalar teaches a digital transmission method for error-correcting code (see Abstract, Divsalar; hybrid concatenated codes are a digital transmission method for error-correcting code), comprising, before a step of transmitting on a channel, a coding procedure for generating, from a source information item, a coded information item comprising at least one redundant information item (Figure 2 of Divsalar teaches various redundant information items generated from a source information item, u) and, after the said step of transmitting on the said channel, a decoding procedure for obtaining, from a received information item to be decoded, an estimate of the said source information item with correction of transmission errors based on the said at least one redundant information item (Figure 20B in Divsalar is a decoding procedure for obtaining, from a received information item to be decoded, various estimates,  $L_0$ ,  $L_1(m)$ ,

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$L_2(m)$ ,  $L_3(m)$ ,  $L_1(m+1)$ ,  $L_2(m+1)$  and  $L_3(m+1)$  for use in correcting the received information item), the said coding procedure comprising a plurality of elementary coding steps associated with a plurality of interleaving steps and acting in parallel or in series (see Figure 2 and Abstract in Divsalar, Note: Divsalar teaches hybrid concatenated code for use in a turbo code apparatus suggesting any combination of serial and parallel concatenated encoders); the said decoding procedure being iterative (Figure 20B in Divsalar is an iterative decoder) and comprising, for each iteration, a plurality of elementary decoding steps which correspond to the said plurality of elementary coding steps with association with a plurality of adapted interleaving and deinterleaving steps (see Figure 20B in Divsalar; Note: the decoder of Figure 20B has three pipelined stages each with its own elementary decoder for performing an elementary decoding step corresponding to the elementary coding steps with a plurality of adapted interleaving and deinterleaving steps), each of the said elementary decoding steps generating at least one weighted output information item which can be transmitted to one or more other elementary decoding steps (see Figure 20B in Divsalar; Note: each of the said elementary decoding steps generates  $L_1(m+1)$ ,  $L_2(m+1)$  and  $L_3(m+1)$  which are weighted output information items which can be transmitted to one or more other elementary decoding steps), the said method being characterized in that it comprises a characteristic quantity determination step for calculating at least one characteristic quantity from a set of weighted output information items generated by at least one elementary decoding step (see Figure 20B in Divsalar; Note: steps used in the weighted output information item which can be transmitted to one or more other elementary



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decoding steps for generating are characteristic quantity determination steps for calculating characteristic quantities,  $L_{1k}$ ,  $L_{2k}$  and  $L_{3k}$  from a set of weighted output information items,  $L_1(m+1)$ ,  $L_2(m+1)$  and  $L_3(m+1)$ , generated by at least one elementary decoding step), and a decoded information quality parameter determination step for determining, from the said at least one characteristic quantity and at least one configuration parameter (see Figure 20B in Divsalar; Note:  $L_0$ ,  $L_1(m)$ ,  $L_2(m)$ ,  $L_3(m)$  are used to configure the elementary decoders, hence  $L_0$ ,  $L_1(m)$ ,  $L_2(m)$ ,  $L_3(m)$  are configuration parameters), a decoded information quality parameter associated with a set of decoded information items corresponding to the said set of weighted output information items (see Figure 20B in Divsalar; Note:  $L_k$  is a decoded information quality parameter associated with a set of decoded information items corresponding to the said set of weighted output information items).

35 U.S.C. 102(e) rejection of claim 2.

See Figure 20B in Divsalar; Note:  $L_k$  is a decoded information quality parameter used after the said decoding procedure.

35 U.S.C. 102(e) rejection of claim 3.

See Figure 20B in Divsalar; Note:  $L_0$ ,  $L_1(m)$ ,  $L_2(m)$ ,  $L_3(m)$ ,  $L_1(m+1)$ ,  $L_2(m+1)$  and  $L_3(m+1)$  are decoded information quality parameters used during the said decoding procedure.

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35 U.S.C. 102(e) rejection of claim 4.

Divsalar teaches a digital transmission method of the error-correcting coding type according to any one of the preceding claims, characterized in that each of the said elementary decoding steps uses part of the said received information, which corresponds to a redundant information item associated with the corresponding elementary coding step (see Figure 20B in Divsalar; Note: each of the said elementary decoding steps uses part of the said received information  $y_1$ ,  $y_2$  and  $y_3$  which correspond to redundant information items associated with the corresponding elementary coding step), for generating an output information item comprising an extrinsic information item which can be transmitted to one or more other elementary decoding steps (see Figure 20B in Divsalar; Note:  $L_{1k}$ ,  $L_{2k}$  and  $L_{3k}$  are extrinsic information items which can be transmitted to one or more other elementary decoding steps), at least one extrinsic information item obtained during one iteration being transmitted to another iteration (see Figure 20B in Divsalar; Note: each of  $L_{1(m+1)}$ ,  $L_{2(m+1)}$  and  $L_{3(m+1)}$ , which are adjusted values of  $L_{1k}$ ,  $L_{2k}$  and  $L_{3k}$ , are transmitted to another iteration), and the said characteristic quantity determination step calculating the said at least one characteristic quantity during an elementary decoding step from a set of extrinsic information items at the output of the said elementary decoding step (See Figure 20B in Divsalar; Note:  $L_k$ ,  $L_{1(m+1)}$ ,  $L_{2(m+1)}$  and  $L_{3(m+1)}$  are calculated during an elementary decoding step from a set of extrinsic information items at the output of the said elementary decoding step).

35 U.S.C. 102(e) rejection of claim 7.

Equation 30 in column 19 of Divsalar teaches that the characteristic quantity is a statistical function characterizing the said set of extrinsic information items.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Divsalar, Dariush et al. (US 6023783 A, hereafter referred to as Divsalar).

35 U.S.C. 103(a) rejection of claim 6.

Divsalar, substantially teaches the claimed invention described in claims 1-4 (as rejected above).

However Divsalar, does not explicitly teach the specific use of the mean value of an absolute value in calculating the statistical function in Divsalar.

The Examiner asserts that equation 30 in column 19 of Divsalar is a statistical function for producing an estimated statistical value. Use of a particular statistical function does not deviate from the scope or the intent of the teachings in the Divsalar patent, since a particular statistical function is a particular embodiment of the statistical function in Divsalar. One of ordinary skill in the art at the time the invention was made would have

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been highly motivated to use a particular embodiment of the statistical function taught in the Divsalar patent since a particular embodiment is required to actually implement the teachings of Divsalar.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Divsalar by including use of the mean value of an absolute value for calculating the statistical function in Divsalar. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of the mean value of an absolute value for calculating the statistical function would provide the opportunity to actually implement the teachings of Divsalar.

### ***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kobayashi, Hisashi et al. (US 6029264 A) teaches an error correction method and system which employs ambiguity zone detection, permutation and inverse permutation and iterative processing to perform the error correction action.

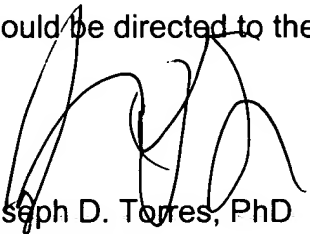
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph D. Torres whose telephone number is (703) 308-7066. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (703) 305-9595. The fax phone numbers

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for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-746-7240.



Joseph D. Torres, PhD  
Art Unit 2133  
June 16, 2003